

<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>								DATE <b>February 1999</b>		
BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>				PE NUMBER AND TITLE <b>0604441F Space Based IR Arch (EMD) (Space)</b>				PROJECT <b>3616</b>		
COST (\$ In Thousands)	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
3616 SBIRS High Element EMD	337,943	539,361	328,653	475,257	376,182	247,588	123,131	95,949	391,900	3,398,992
Quantity of RDT&E Articles	0	0	0	1	1	0	1	1	0	4

Notes: One each HEO sensor delivered in FY01 and FY02, one each GEO spacecraft delivered in FY04 and FY05

(U) **A. Mission Description**

(U) The Space-Based Infrared System's (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces or its allies. SBIRS will incorporate new technologies to enhance detection; improve reporting of ICBM, SLBM and tactical ballistic missiles; and provide critical mid-course tracking and discrimination data for national and theater missile defense. This will provide increased performance in order to meet requirements in US Space Command's Capstone Requirements Document and Operations Requirements Document. SBIRS will consist of satellites in Geosynchronous Orbits (GEO), Highly Elliptical Orbits (HEO) and Low Earth Orbits (LEO) and an integrated centralized ground station serving all SBIRS space elements and Defense Support Program (DSP) satellites. This Program Element funds the GEO & HEO portions of SBIRS with their associated ground elements.

(U) **FY 1998**

- (U) \$322,243 Continue EMD contracts for Space and Ground segment development
- (U) \$ 5,500 Continue System Program Office Support
- (U) \$ 10,200 Technical analysis and independent verification and validation of contractor by FFRDC
- (U) \$337,943 Total

(U) **FY 1999**

- (U) \$504,714 Continue EMD contracts for Space and Ground segment development
- (U) \$ 5,460 Continue System Program Office Support
- (U) \$ 11,340 Technical analysis and independent verification and validation of contractor by FFRDC
- (U) \$ 17,847 Identified as a source for Small Business Innovative Research (SBIR)
- (U) \$539,361 Total

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<b>5 - Engineering and Manufacturing Development</b>	<b>0604441F Space Based IR Arch (EMD) (Space)</b>	<b>3616</b>
<p>(U) <u>FY 2000</u></p> <ul style="list-style-type: none"> <li>- (U) \$311,253 Continue EMD contracts for Space and Ground segment development</li> <li>- (U) \$ 5,850 Continue System Program Office Support</li> <li>- (U) \$ 11,550 Technical analysis and independent verification and validation of contractor by FFRDC</li> <li>- (U) \$328,653 Total</li> </ul> <p>(U) <u>FY 2001</u></p> <ul style="list-style-type: none"> <li>- (U) \$457,357 Continue EMD contracts for Space and Ground segment development</li> <li>- (U) \$ 5,930 Continue System Program Office Support</li> <li>- (U) \$ 11,970 Technical analysis and independent verification and validation of contractor by FFRDC</li> <li>- (U) \$475,257 Total</li> </ul> <p>(U) <b>B. <u>Budget Activity Justification:</u></b></p> <p>(U) This program is assigned to Budget Activity 5, Engineering and Manufacturing Development because it funds the EMD activities for the SBIRS High program.</p>		
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(U) <b>C. <u>Program Change Summary (\$ in Thousands)</u></b>										
	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>					
(U) Previous President's Budget(FY1999 PB)	316,467	538,438	564,239	395,905	2,801,661					
(U) Appropriated Value	338,413	541,938								
(U) Adjustments to Appropriated Value										
a. Cong Gen Reductions	-13,580	-2,577								
b. SBIR	-8,366									
c. Omnibus or Other Above Threshold Reprogram	21,600									
d. Below Threshold Reprogramming	-124									
e. Rescissions										
(U) Adjustments to Budget Years Since FY1999 PB			-235,586	79,352	574,656					
(U) Current Budget Submit/FY 2000 PB	337,943	539,361	328,653	475,257	3,376,317					
(U) Significant Program Changes:										
Funding: FY98: \$21.600M Above Threshold Reprogramming approved by Congress.										
FY99: \$17.847M identified as a source for Small Business Innovative Research (SBIR).										
FY00 and FY01 adjustments are due to program restructure.										
FY01-FY05: Funding for GEO3 satellite has been changed from RDT&E to Procurement.										
Schedule: The SBIR High program was restructured and the first SBIRS geosynchronous satellite launch delayed from 4QFY02 to 4QFY04.										
(U) <b>D. <u>Other Program Funding Summary (\$ in Thousands)</u></b>										
	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To</u>	<u>Total Cost</u>
									<u>Complete</u>	
(U) Missile Procurement (PE 0305915F, BA-45, P-1-N/A)	0	0	0	12,000	24,000	174,350	225,908	188,220	Cont	Cont
(U) Other Procurement (PE 0305915F, BA-45, P-1-N/A)	0	0	0	0	31,208	0	0	0	0	31,208
<b><u>Related RDT&amp;E:</u></b>										
(U) PE 603441F - SBIRS Dem/Val										
(U) PE 305911F - DSP										
(U) PE 604442F - SBIRS Low EMD										
(U) <b>E. <u>Acquisition Strategy:</u></b>										
Project 3616										
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<p>(U) SBIRS is a lead program for acquisition streamlining. The pre-EMD contracts were competed in full and open competition. Two contracts were awarded to Lockheed/Loral/Aerojet and Hughes/TRW for the pre-EMD phase. A single contract was awarded to Lockheed Martin for the EMD phase.</p> <p><b>(U) F. <u>Schedule Profile</u></b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th></th> <th colspan="3"><u>FY 1998</u></th> <th></th> <th colspan="3"><u>FY 1999</u></th> <th></th> <th colspan="3"><u>FY 2000</u></th> <th></th> <th colspan="3"><u>FY 2001</u></th> </tr> <tr> <th></th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>(U) High Orbiting Space Vehicle /Spacecraft Preliminary Design Review</td> <td>X</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Ground Inc-2 Preliminary Design Review</td> <td>X</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) System Preliminary Design Review</td> <td>X</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Payload Critical Design Review*</td> <td></td> <td></td><td></td><td></td><td></td> <td>X</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Ground Inc-1- Consolidated DSP Stations*</td> <td></td> <td></td><td></td><td></td><td></td> <td></td> <td></td><td></td><td></td> <td>X</td> <td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Ground Inc.-2 Critical Design Review*</td> <td></td> <td></td><td></td><td></td><td></td> <td></td> <td></td><td></td><td></td> <td>X</td> <td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) HEO Payload #1 Delivered</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>X</td> </tr> <tr> <td>(U) HEO Payload #2 Delivery (FY02)</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) GEO Satellite #1 Delivery(FY04)</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) GEO Satellite #2 Delivery(FY05)</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p>* Items subject to change upon contractual implementation of the two year delay.</p>																<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>				1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	(U) High Orbiting Space Vehicle /Spacecraft Preliminary Design Review	X																(U) Ground Inc-2 Preliminary Design Review	X																(U) System Preliminary Design Review	X																(U) Payload Critical Design Review*						X											(U) Ground Inc-1- Consolidated DSP Stations*										X							(U) Ground Inc.-2 Critical Design Review*										X							(U) HEO Payload #1 Delivered																X	(U) HEO Payload #2 Delivery (FY02)																	(U) GEO Satellite #1 Delivery(FY04)																	(U) GEO Satellite #2 Delivery(FY05)																
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									DATE February 1999		
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT	
5 - Engineering and Manufacturing Development					0604441F Space Based IR Arch (EMD) (Space)					3616	
(U) A. <u>Project Cost Breakdown (\$ in Thousands)</u>											
					<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>			
(U) EMD Contract					322,243	504,714	311,253	457,357			
(U) System Program Office Support					5,500	5,460	5,850	5,930			
(U) Aerospace Corp					10,200	11,340	11,550	11,970			
(U) Identified as a source for SBIR						17,847					
(U) Total					337,943	539,361	328,653	475,257			
(U) B. <u>Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
<b>Performing Organizations:</b>											
Contractor or Government	Contract Method/Type	Award or Obligation	Performing Activity	Project Office	Total Prior to FY 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>FY 1998</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Identified as a source for SBIR							17,847				17,847
<u>Product Development Organizations</u>											
LMMS & TRW (Pre-EMD)	C/CPFF	Jul 95	217,880	217,880	217,880	0	0			0	217,880
LMMS (EMD)	C/CPAF	Nov 96			171,918	322,243	504,714	311,253	457,357	1,138,950*	2,906,435
TBD(Technology)	Various	Sep 95	11,600	11,600	11,600	0	0			0	11,600
TBD(Phenom)	Various	Sep 95	17,350	17,350	17,350	0	0			0	17,350
Sandia Nat'l Lab (Cobra Brass)	Various	Sep 95	10,000	10,000	10,000	0	0			0	10,000
<u>Support and Management Organizations</u>											
Aerospace Corp	MORD	Sep 95	N/A	N/A	29,400	10,200	11,340	11,550	11,970	64,800	139,260
Prgm Mgmt Supt	Various	Sep 95	N/A	N/A	20,100	5,500	5,460	5,850	5,930	31,000	73,840
<u>Test and Evaluation Organizations</u>											
Not Applicable											
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										DATE <b>February 1999</b>	
BUDGET ACTIVITY <b>5 - Engineering and Manufacturing Development</b>						PE NUMBER AND TITLE <b>0604441F Space Based IR Arch (EMD) (Space)</b>					
Contractor or Government Performing <u>Activity</u>	Contract Method/Type or Funding <u>Vehicle</u>	Award or Obligation <u>Date</u>	Performing Activity <u>EAC</u>	Project Office <u>EAC</u>	Total Prior to <u>FY 1998</u>	Budget <u>FY 1998</u>	Budget <u>FY 1999</u>	Budget <u>FY 2000</u>	Budget <u>FY 2001</u>	Budget to <u>Complete</u>	Total <u>Program</u>
*Subject to change upon negotiation of contract changes related to the schedule slip and the financing change for GEO 3.											

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										February 1999	
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5 - Engineering and Manufacturing Development					0604441F Space Based IR Arch (EMD) (Space)					3616	
(U) B. <u>Budget Acquisition History and Planning Information Continued (\$ in Thousands)</u>											
Contractor or Government	Contract Method/Type	Award or Obligation	Performing Activity	Project Office	Total Prior to	Budget	Budget	Budget	Budget	Budget to	Total
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>FY 1998</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Government Furnished Property: Not Applicable.											
Identified as a source for SBIR							17,847				17,847
Subtotal Product Development					428,748	322,243	504,714	311,253	457,357	1,138,950	3,163,265
Subtotal Support and Management					49,500	15,700	16,800	17,400	17,900	95,800	213,100
Subtotal Test and Evaluation					0	0	0			0	0
Adjustment (SBIRS Pre-EMD Contract Adjustments)					4,780						4,780
Total Project					483,028	337,943	539,361	328,653	475,257	1,234,750	3,398,992